Low-Energy Buildings

Yale First Nation Sixplex

Agassiz, British Columbia

The First Passive Homes Built in an Indigenous Community in Canada

The **Yale First Nation Sixplex** is one of two townhouse projects built by B.C.'s Yale First Nation to Passive House standards.

The complex was designed to fit the unique needs of Band members while meeting the highest standards of energy-efficiency, airtightness and comfort. It is also the first development (and one of the most energy-efficient) ever built in a Canadian Indigenous community to be certified by Passive House Canada.

Images courtesy of Yale First Nation.

Yale First Nation Sixplex: Quick Facts

- **Project:** two-storey modular 6-plex built to Passive House standards
- **Location:** Yale First Nation, Agassiz, British Columbia
- **Development cost:** $1.5 million
- **Number of units:** Six two-bedroom townhouses
- **Size:** 88 m^2 (947 sq. ft.) each
- **Target occupants:** Couples and small families
- **Development partners:** Yale First Nation; Metric Modular; Tri-West Contracting; Traun Landscaping
- **Funding partners:** Department of Indigenous Services Canada (DISC); Canada Mortgage and Housing Corporation (CMHC); Yale First Nation
- **Construction timeline:** October 2016 to March 2017

Source: Yale First Nation

"By using Passive House, we were able to reduce our heating and cooling costs and save our members hundreds of dollars per year. We also increased the lifespan of the homes and improved the health outcomes for our members. Figuring in the lower levels of stress, lower maintenance costs and less pressure on the Band to bail members out when energy bills become unmanageable, the benefits of Passive Housing far outweigh the costs."

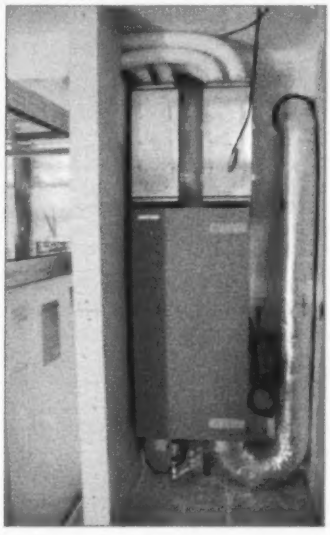
- Crystal Sedore, Housing Manager, Yale First Nation

Canada

CMHC SCHL

Passive House: Better Buildings. Affordable Performance.

Passive House is a "better building" approach to design and construction. It was pioneered in Saskatchewan in the early 1970s and refined by the Passive House Institute in Germany. Through the use of passive techniques, technologies and strategies, the goal is to improve energy efficiency, reduce operating expenses and create a healthier and more comfortable living environment. Instead of relying on complex energy or mechanical systems, Passive House focuses on simple and inexpensive ways to improve performance. These include options like more or better insulation, high-efficiency windows, an airtight building envelope and energy or heat recovery ventilators (ERVs/HRVs).



Images courtesy of Yale First Nation.

Yale First Nation Sixplex: Key Features

As is the case with many First Nation communities, a large portion of Yale First Nation's homes were in need of major repairs. Several of their single-family homes cost more than $60,000 a year in energy bills and maintenance.

The Band designed the sixplex to create comfortable, attractive and energy-efficient homes that could withstand B.C.'s notoriously rainy winters. To keep energy and operating costs as low as possible, the homes were built using a range of Passive House techniques. These included features like:

- **factory-built modular construction**—to build the healthy, efficient homes faster and for a fraction of the cost of traditional construction
- **thermal bridge-free design**—to minimize heat transfer through the walls, foundation and insulation
- **an airtight building envelope**—to prevent heat loss and moisture damage
- **triple-glazed windows**—to cut energy loss and eliminate cold spots
- **increased insulation**—to lower energy bills and improve tenant comfort
- **mould-resistant materials**—to reduce mould and improve indoor air quality
- **solar orientation**—to reduce heating costs in the winter and overheating in the summer, and
- **a high-efficiency heat recovery ventilator (HRV)**—to provide fresh air and energy-efficient heating all year round.

> *"In addition to saving money, we are also being good stewards to the Earth by reducing our greenhouse gas emissions and using less energy. As a First Nation community, it is very important to us to minimize our carbon footprint."*
>
> **- Crystal Sedore, Housing Manager, Yale First Nation**

As a result of these measures, the sixplex is expected to be close to **80% more energy-efficient** and **emit 80% less greenhouse gas** than a similar building constructed without the Passive House features.

On even the coldest nights, each house can be heated using the **same amount of energy as just six 100-watt light bulbs**. This will **save the tenants hundreds of dollars a year** in energy costs.

Following extensive Passive House testing, the sixplex was officially **certified by Passive House Canada**. Going forward, Yale First Nation intends to build all its future on-[illegible]ve homes in accordance with Passive House standards.

Further Information

Yale First Nation: https://yalefirstnation.ca

Passive House Canada: www.passivehousecanada.com

Passive Buildings Canada: www.passivebuildings.ca

Canadian Passive House Institute: www.passivehouse.ca

CMHC research report entitled *Passive Approaches to Low-Energy Affordable Housing Projects—Literature Review and Annotated Bibliography*: ftp://ftp.cmhc-schl.gc.ca/chic-ccdh/Research_Reports-Rapports_de_recherche/2017/RR_Passive_Approaches_to_Low_energy_Affordable_Housing_Projects.pdf

CMHC Analyst: Sandra Baynes, Senior Analyst

Writer: David A.V. Elver Communications Inc.

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